

Liverpool John Moores University

Title: INTRODUCTION TO ASTRONOMY
Status: Definitive
Code: **3301FNDSCI** (101053)
Version Start Date: 01-08-2014

Owning School/Faculty: Astrophysics Research Institute
Teaching School/Faculty: Astrophysics Research Institute

Team	Leader
Andrew Newsam	Y
Philip James	
David Hyder	

Academic Level: FHEQ3
Credit Value: 12.00
Total Delivered Hours: 4.00
Total Learning Hours: 120
Private Study: 116

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	4.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	essay	Popular Article Essay.	40.0	
Report	observ	Observational Project.	40.0	
Test	test	Multiple Choice Test.	20.0	1.00

Aims

This module is intended to be a suitable introduction to astronomy for students taking the Natural Sciences Foundation programme. The module aims to provide students with a broad appreciation of our current knowledge of the universe and the way in which that knowledge has been obtained. The syllabus is therefore wide-ranging and will cover all topics of astronomy such as supernovae, black holes and the possibility

of life on other worlds. It also aims to give students a practical understanding of the way in which modern technology is used to probe the secrets of the universe. It is intended to be a self-contained multimedia astronomy course using lectures, interactive CD-ROM material, DVDs, the world wide web and email.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe in broad terms our current state of knowledge of the large-scale contents of the Universe including how stars and galaxies evolve and how they fit into ideas about the Universe into its present and future state.
- 2 Discuss the major questions that are currently being addressed in astronomy.
- 3 Be familiar with observing the night sky, astronomical computer simulations and the use of an internet browser.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Essay	1	2	
Observational project	1	3	
test	1	2	3

Outline Syllabus

- (1) Cycles of creation; formation of stars and planets; variable stars; galactic structures; interstellar medium; stellar energy sources; evolution of stars; dying stars.*
- (2) Practical imaging; the techniques of taking photos of the sky from absolute basics to telescope-guided astrophotography.*
- (3) Stellar remnants: brown dwarfs, white dwarfs, neutron stars & pulsars, black holes, supernovae; dark matter candidates*
- (4) The Milky Way: different components; chemical evolution; importance of dust; interstellar medium; spiral structure; distance indicators; galactic dark matter*
- (5) Extrasolar planets; history, discovery, search techniques, distribution, metallicity*
- (6) Cosmology; why is the sky dark at night; the big bang and other cosmologies; thermal background radiation; the beginning of the Universe; formation of heavy elements.*
- (7) Galaxy formation & evolution; galaxy classification; dynamics of galaxies; gravitational lensing; black holes; inflation; quasars; age of the Universe; missing mass; the fate of the Universe.*
- (8) Search for extraterrestrial intelligence; how life might evolve on other worlds; prospects for interstellar travel; terraforming.*

Learning Activities

Lectures, material and assignments on CD-ROM, on-line discussion groups, web, email interaction with tutor, DVDs.

References

Course Material	Book
Author	Astrophysics Research Institute
Publishing Year	2007
Title	Course CD-ROM
Subtitle	
Edition	
Publisher	LJMU
ISBN	

Course Material	Book
Author	Kaufmann, W.J. & Freedman, R.A.
Publishing Year	2009
Title	Discovering the Universe
Subtitle	
Edition	8th
Publisher	Freeman
ISBN	

Notes

None.